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THE EFFECTIVENESS OF USING WORD WALL MEDIA TO INCREASE SCIENCE-BASED VOCABULARY OF STUDENTS WITH HEARING IMPAIRMENT

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Abstract:
The aim of this research is to find out the effectiveness of using word wall media to increase science-based vocabulary of students with hearing impairment of the third grade in SLB B YRTRW Surakarta the academic year 2015-2016. The vocabulary of science-based is about energy. This research used pre experimental method with one group pretest-posttest design by using sample of 8 students of the third elementary school. Data was collected by using multiple choice objective tests. The data analysis technique used was quantitative analysis with non-parametric technique Wilcoxon Signed-Rank Test with SPSS version 23 and showed the increasing of the test scores between before and after treatment. The result of this research is concluded that Word Wall Media is effectively increased science-based vocabulary of students with hearing impairment of the third grade elementary school in SLB B YRTRW Surakarta in the academic year 2015-2016.

Keywords: word wall media, students with hearing impairment, science-based vocabulary

1. Introduction

Individual with hearing impairment is someone who has difficulties in getting information because they loss their hearing ability, and resulted difficulties on their communication. Their ability in language and speech are disturbed too, because there is connection between language and speech capabilities with hearing acuity. So children

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with hearing impairment get bad impact on their communication. Yusuf (2009:5), mention that hearing impairment is children who have lost all or almost their hearing ability so they have difficulty communicate verbally. Shemesh (2010:1) said that it is one of the most common sensory disorders and is the consequence of sensory neural and/or conductive malfunctions of the ear.

Classification of hearing impairment degree is divided into five levels (Developmental Disorder Series, 2009:1, Swanepoel & Laurent: 2016:1) classified the degree of hearing impairment into five levels, Developmental Disorder Series classified five degree of hearing impairment into mild, moderate, moderately-severe, severe and profound. Almost the same, Swanepoel & Laurent classified into normal, mild, moderate, severe, and profound. According to WHO (2016: 6-7), some possible causes of hearing impairment are genetic factors, infections, conditions at the time of birth, diseases of the ear, noise, and medicine.

Haenudin said that the characteristics students with hearing impairment can be seen in terms of intelligence, language and speech, as well as emotional and their social (2013: 66-67). He mentioned that their achievements are often lower when compared with regular students. This is not because they have low intelligence, but because they hard to catch and understand verbal lessons. The language and speech aspect of students with hearing impairment is getting barriers. They have difficulty in communicating and trouble understanding the material which is presented to him because they are difficult to catch a verbal vocabulary, so they need a communication and media which are access to their need. One of the factors that lead the difficulty communication and understanding the material that presented in the school by teachers of students with hearing impairment is lack of vocabulary.

Nation (2001) said that the relationship between vocabulary knowledge and language use as complementary: knowledge of vocabulary enables language use and, conversely, language use leads to an increase in vocabulary knowledge. There is no exception for students with hearing impairment also have difficulty in capturing and understanding the vocabulary. According to the observation that have been done before, hearing impaired students of the third grade in SLB B YRTRW Surakarta having barriers on their science-based vocabulary especially on chapter that discusses about Energy.

The solution to overcome the problem of lack of vocabulary students with hearing impairment, the researchers propose an alternative solution in the form of media that can be used by teachers in the learning process, namely word wall media. Cronsberry (2004:3) said that the word wall is a group of words that are put on the wall, bulletin boards, check the boards or whiteboards in the classroom. The words are

printed large that they can be viewed easily from any seat. These words may come from teachers and students for teaching and learning take place. So the word wall will be visible whenever and wherever students are in the classroom. Other functions of the word wall (Callella, 2001: 3), that the word wall is also a visual medium that helps students remember the relationship between one vocabulary with others.

The using of the word wall media with a strategy that has been presented above is expected to increase science-based vocabulary in SDLB SLB-B the third grade YRTRW Surakarta academic year 2015-2016.

2. Method

This research used a quantitative approach. This type of research is experimental research with pre-experimental design type one group pretest-posttest. Sugiyono (2011: 74-75) said that one group pretest-posttest, there is a pretest before being given treatment and posttest after treatment are thus know the results of the treatment are more accurate because it can compare the situation before and after the treatment it provides. Giving treatment used word media wall is given as much as four times with the material energy. Implementation of the treatment carried out for 2 x 30 minutes in one session.

The subjects of this research are eight students with hearing impairment the third grade in SLB-B YRTRW Surakarta.

This study used a technique tests as data collection techniques. The test used is written test. The written test conducted twice, pretest and posttest. Data values obtained from the pretest and posttest calculated and analyzed by non-parametric (Wilcoxon Signed Rank Test). The data were analyzed with SPSS version 23.

3. Results

Data collected through pretest-posttest. Based on the data obtained pretest values as follows:

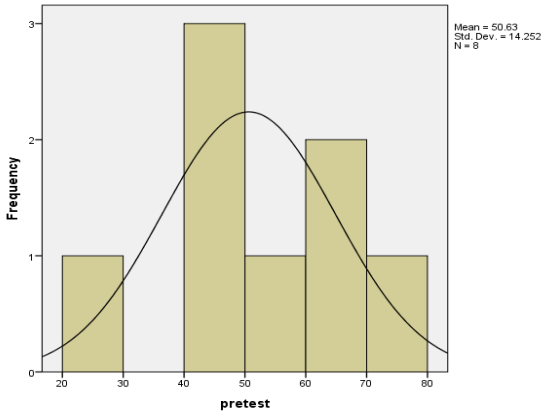
Table 1: The descriptive statistics pretest value

Statistics		
Pretest		
N	Valid	8
	Missing	0
Mean		50.63
Median		47.50

Mode		45
Std. Deviation		14.252
Minimum		25
Maximum		70
Percentiles	25	45.00
	50	47.50
	75	63.75

According to the table it can be seen the mean/average vocabulary skills students with hearing impairment of class III SDLB SLB B YRTRW Surakarta before being given treatment is 50.63 with the highest score is 70 and the lowest is 25 and value of standard deviation obtained is 14.252. Through that table can be presented in histogram form as follows:

Graphic 1: Histogram of pretest science-based vocabulary



Based on the data obtained posttest values as follows:

Table 2: Descriptive Statistics Value posttest

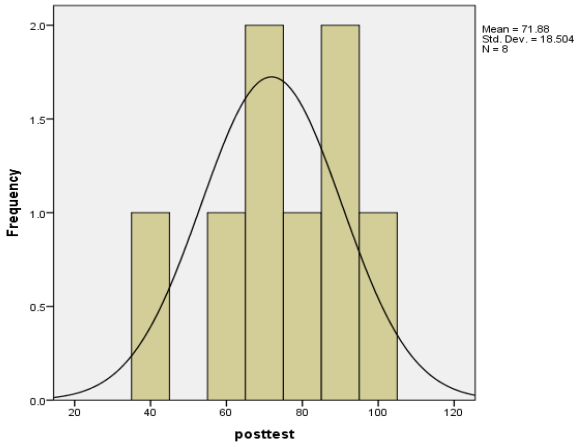
Statistics

Posttest

N	Valid	8
	Missing	0
Mean		71.88
Median		72.50
Mode		40[a]
Std. Deviation		18.504
Minimum		40
Maximum		95
Percentiles	25	57.50
	50	72.50
	75	88.75

Based on the table, it can be seen the average value of the posttest score was 71.88 with a highest score is 95 and posttest lowest value is 40, with a standard deviation is 18.504. Through that table can be presented in histogram form as follows:

Graphic 2: Histogram of posttest science-based vocabulary



Based on the statistical analysis calculations Wilxocon Signed Rank Test will be obtained Z count and Asymp.Sig (2-tailed). Below is the result of Wilcoxon Signed Rank test analysis using SPSS version 23:

Table 3: Calculation of data analysis between before and after treatment

Wilcoxon Sign Rank Test

Ranks

		N	Mean Rank	Sum of Ranks
posttest - pretest	Negative Ranks	0[a]	.00	.00
	Positive Ranks	8[b]	4.50	36.00
	Ties	0[c]		
	Total	8		

a. posttest < pretest

b. posttest > pretest

c. posttest = pretest

Based on the analysis Wilcoxon Signed Rank Test between the pretest and posttest it can be seen that there is no subject that received negative rank, all subjects received an increase in value and acquire positive rank, so can be said that the whole subject of increased value at the time of the posttest by mean rank is 4.50 and the sum of rank is 36.00. Here are the results of statistical tests the value pretest and posttest:

Table 4: The results of statistics test

Test Statistics [a]	
	posttest – pretest
Z	-2.530[b]
Asymp. Sig. (2-tailed)	.011

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

According to the statistical results of pretest and posttest values that have been presented, the value Z count = -2.530 with Asymp.Sig (2-tailed) = 0.011. The probability value in the Z count is then compared with the predetermined probability is α = 0.05. Then the alternative hypothesis (Ha) is accepted. So it can be said that using of word wall media effectively to increase science-based vocabulary for students with hearing impairment of the third grade in SDLB SLB-B YRTRW Surakarta academic year 2015-2016.

4. Discussion

Based on the results, it is known that the word wall media effectively increasing science-based vocabulary for students with hearing impairment of the third grade in SDLB SLB-B YRTRW Surakarta academic year 2015-2016. Using of this media is expected to be used in other learning. Word wall is a medium that makes students more interested in the learning process, so they are actively involved in learning process and understand material presented. Jackson & Narvaez (2013: 43) said that to support vocabulary development in science is used interactive science word walls that resemble graphic organizers, strategically target academic vocabulary, and are student generated. In research from Kasim (2012), the result shows that using word wall media is effective to improve English vocabulary, especially to improve the vocabulary of nouns and verb with the subject of junior high school students of class VIII. This is in line with result of research from Rijali (2014), the results of his research explains that using word wall media effectively to improve the vocabulary of the Arabic language to the subject class X high school. This is also in line with another research showing that the use of word wall media can improve reading skills of elementary school students in the first grade (Jasmine & Pamela: 2009).

Easterbrooks & Alvarez (2013: 104-108), according to their book, entitled Literacy Instruction for Students Who Are Deaf and Hard of Hearing, mentions several ways to increase vocabulary for deaf students: (1) relate to prior knowledge, (2) use a visual organizer, (3) using semantic equivalents to teach multiple word and figurative

meanings, (4) use of word wall... The book said that using word wall media is one of the various ways to increase vocabulary. Callella (2001) in her book Making Your Word Wall More Interactive, said that the visual word wall is able to help the students to remember the vocabulary or the relationship between words. In particular, subject in this study is students with hearing impairment optimize their visual ability in obtaining information. She said too that when teaching the word wall activities should be involves the whole class, small group and individual. Dennis (2013), stating that why used word wall media is because "*...visual record of skills and content and visual map of connections between words and characteristics that form categories*". Moreover Cohen & Cowen (2008: 134), said that word walls is a wonderful and fun way to teach new words to children.

Harmon, et.al. (2009) mentioned steps instructional sequence for using the word wall, (a) selecting word to teach, (b) introducing words, (c) making connections to the words, (d) using the words in meaningful ways, and (e) sharing the words meanings. Especially for science-based vocabulary, Dugan (2004: 50-51), in his book Strategic Academic Vocabulary for building in Science said the strategy of increasing the science-based vocabulary using the word wall media with steps as follows: (1) Decide science-based vocabulary words that will be used, (2) Write down any vocabulary on the board, (3) Writing vocabulary on a piece of paper/card, (4) Request the participation of students in making word wall, (5) Word wall should be added and modified depending on the theme or material covered, (6) directing students to use the word wall as a medium for understanding new vocabulary, (7) at the end of the lesson, ask the students how display of word wall that had been made and whether helping them for learn and remember new vocabulary.

That ways above can be implemented on teaching and increasing science-based vocabulary for students with hearing impairment, so their vocabulary skill can be improved better than before.

5. Conclusion

Based on the discussion above, the conclusion is that word wall media effectively increasing science-based vocabulary for students with hearing impairment of the third grade SDLB SLB-B YRTRW Surakarta academic year 2015- 2016. The reason the effectiveness using word wall media is to optimize the visualization capabilities of students with hearing impairment to assist them in obtaining information that they can't get from their hearing ability, improve their tactile ability in learning process

activity with word wall media, and enhance the activity of learning because it is interesting.

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